

FIG. 2A

LYMPHOCYTES

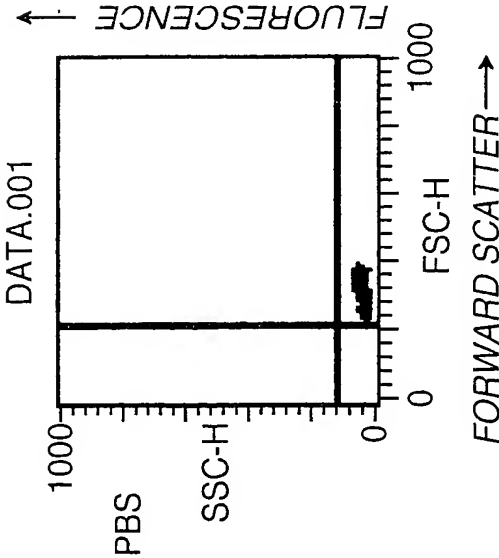


FIG. 2B

GRANULOCYTES

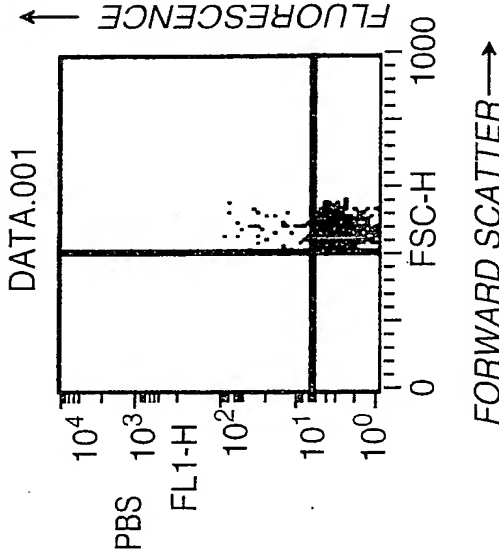


FIG. 2C

MONOCYTES

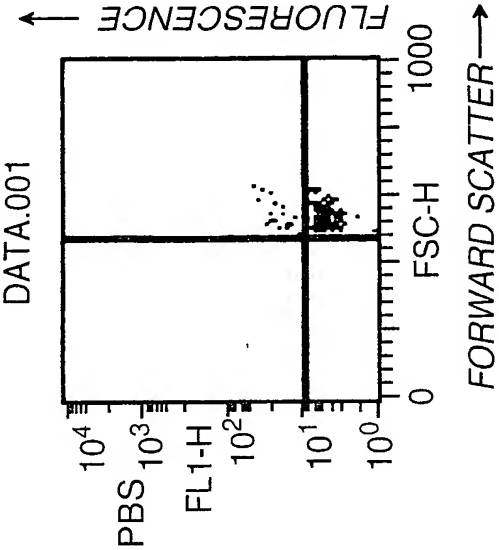


FIG. 2D

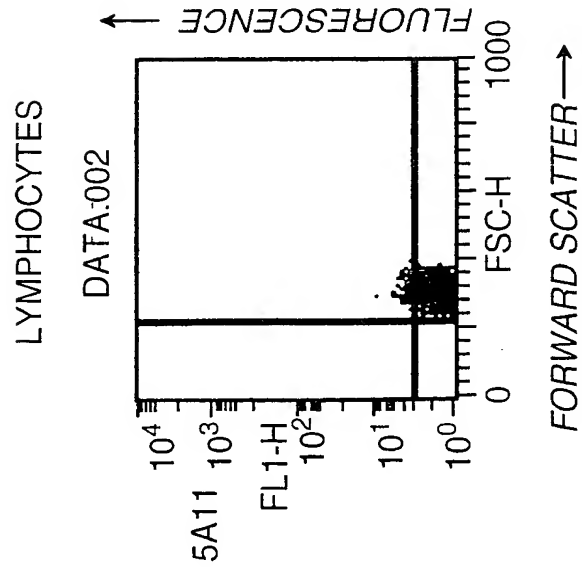


FIG. 2E

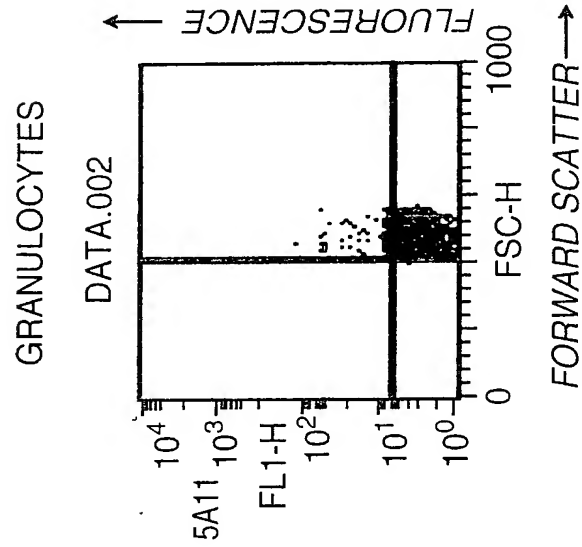


FIG. 2F

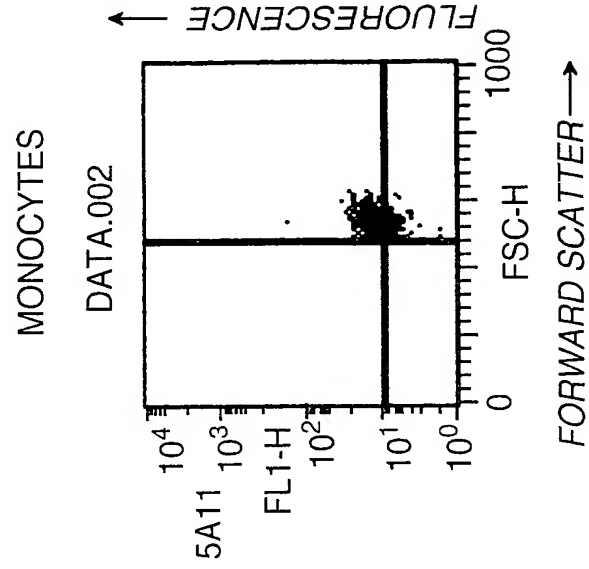


FIG. 2G

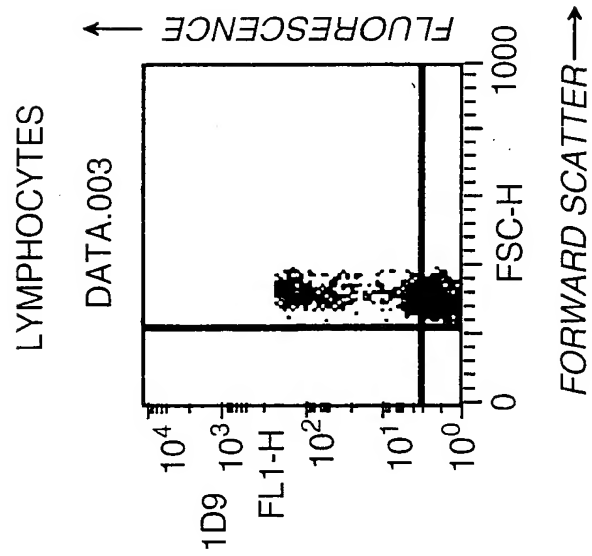


FIG. 2H

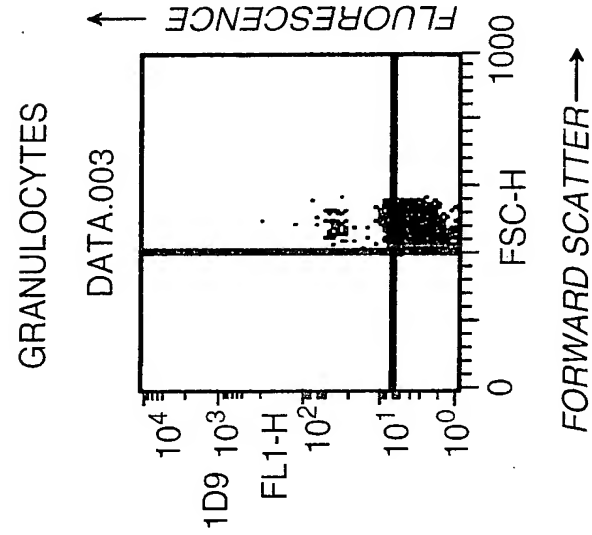


FIG. 2I

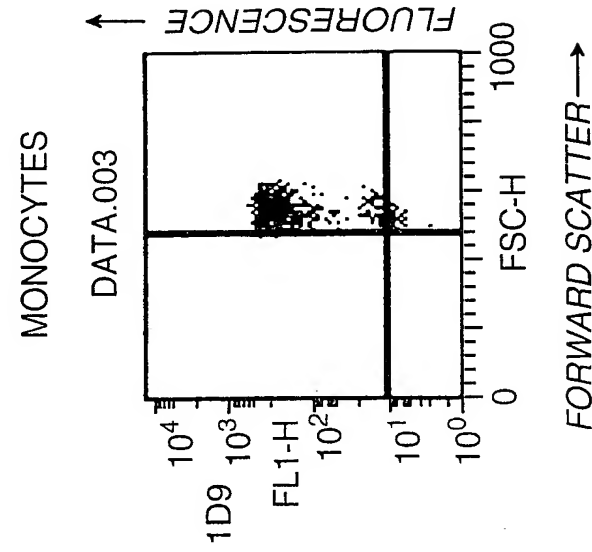


FIG. 2J

LYMPHOCYTES

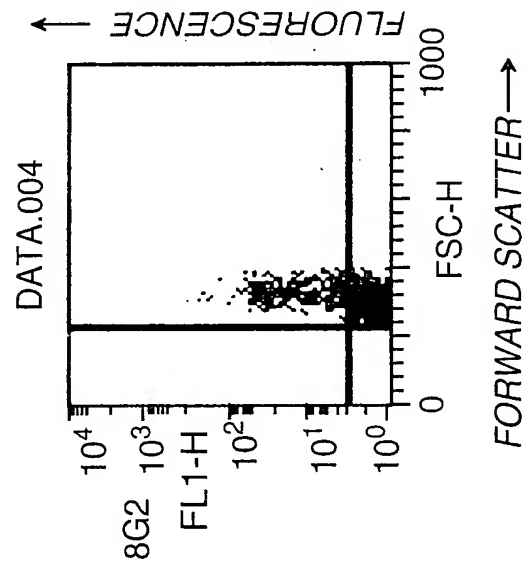


FIG. 2K

GRANULOCYTES

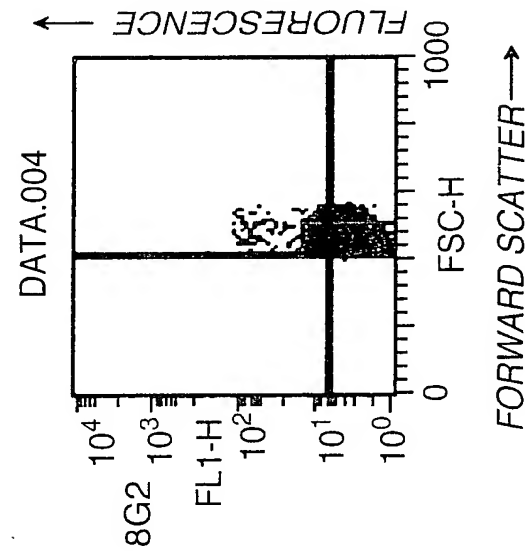


FIG. 2L

MONOCYTES

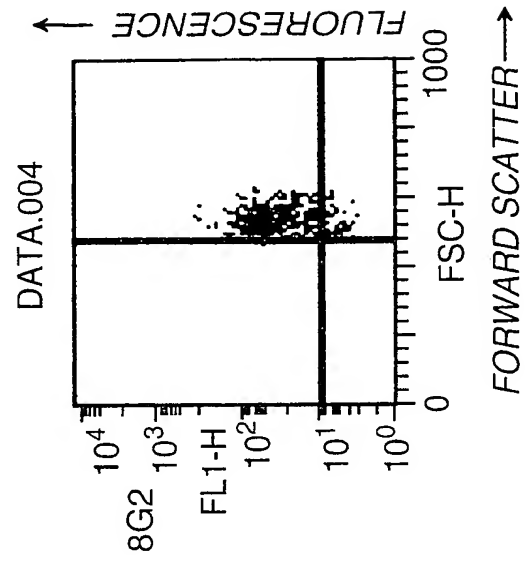


FIG. 3A

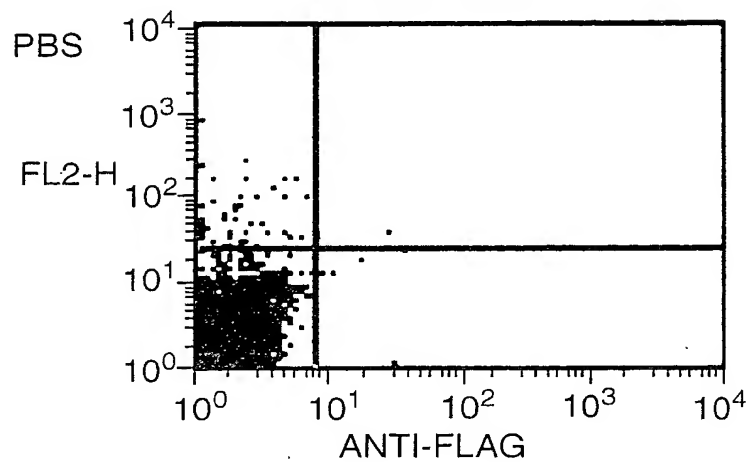


FIG. 3B

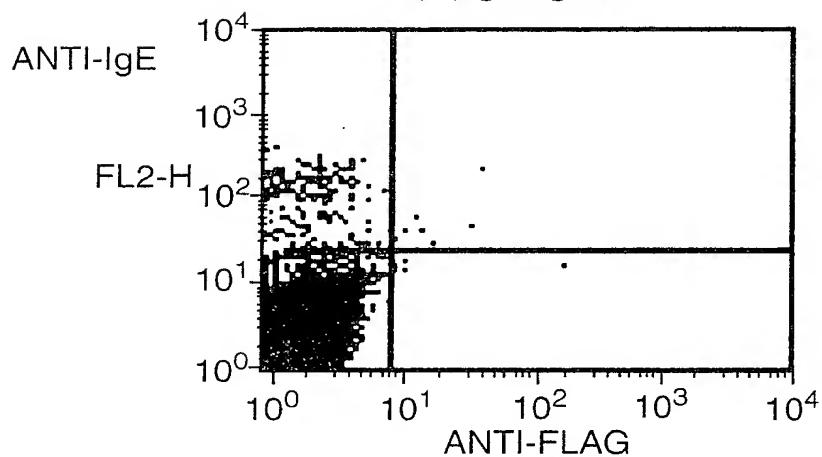


FIG. 3C

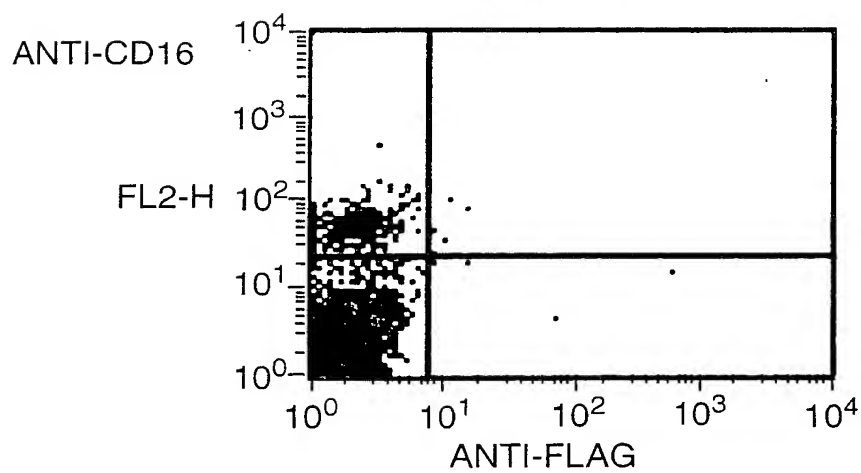


FIG. 3D

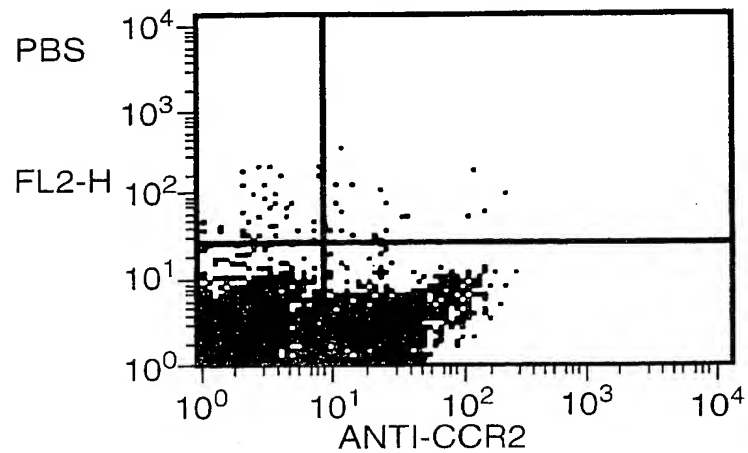


FIG. 3E

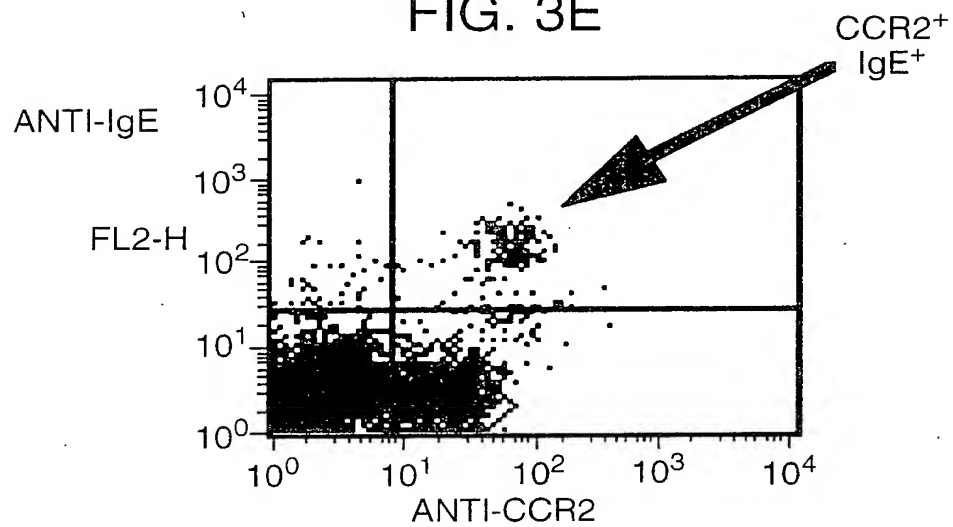


FIG. 3F

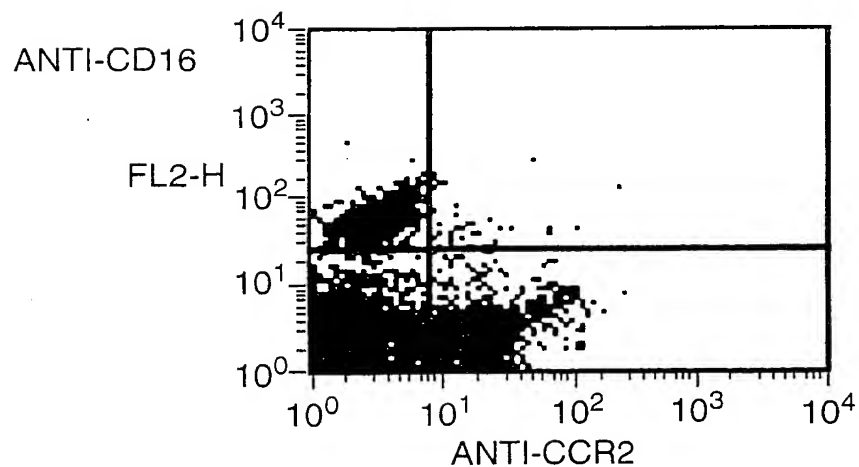


FIG. 3G

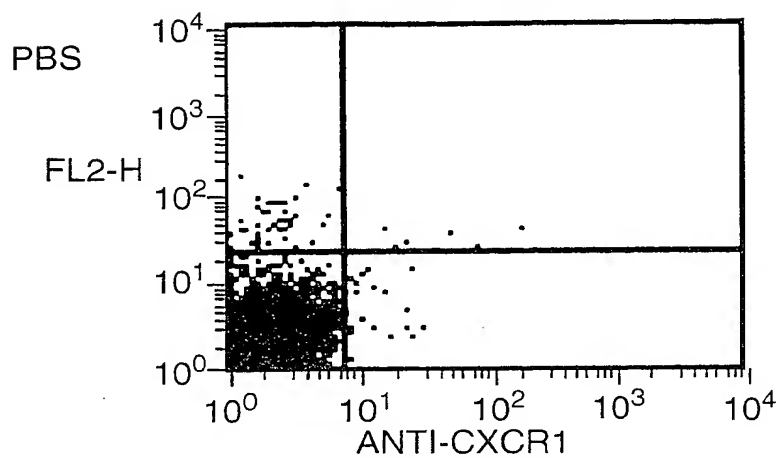


FIG. 3H

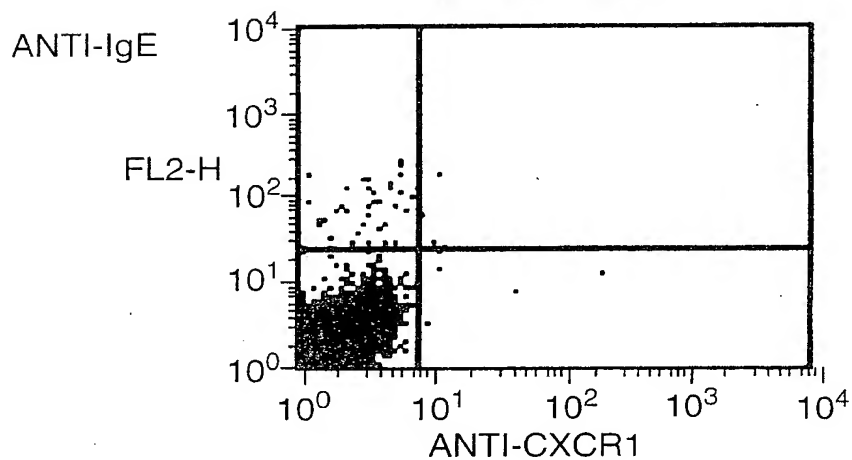
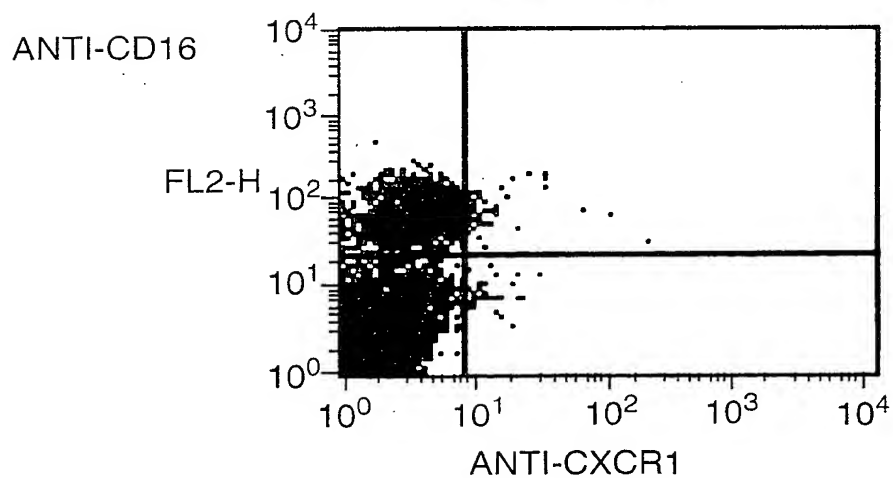


FIG. 3I



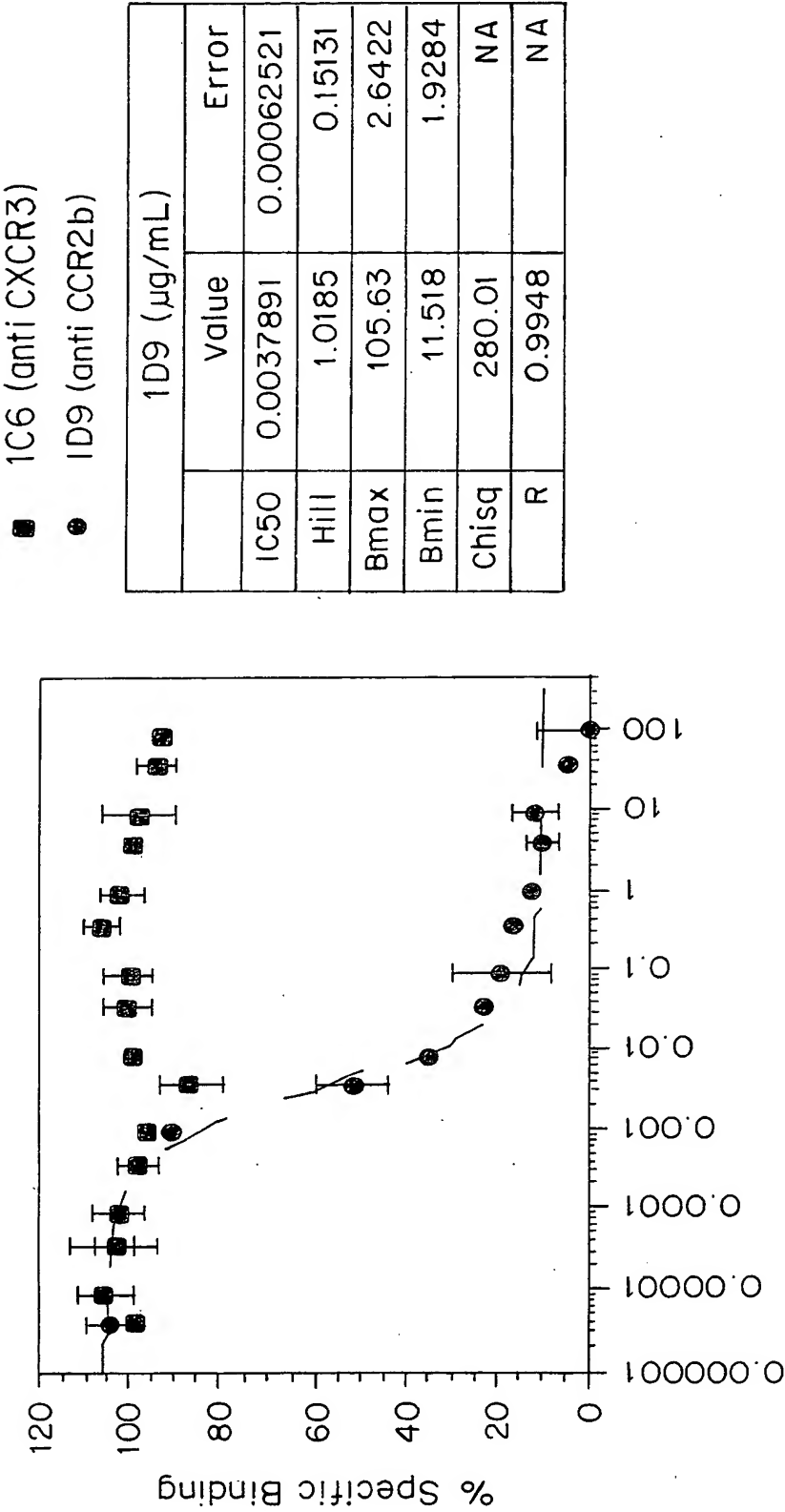


FIG. 4

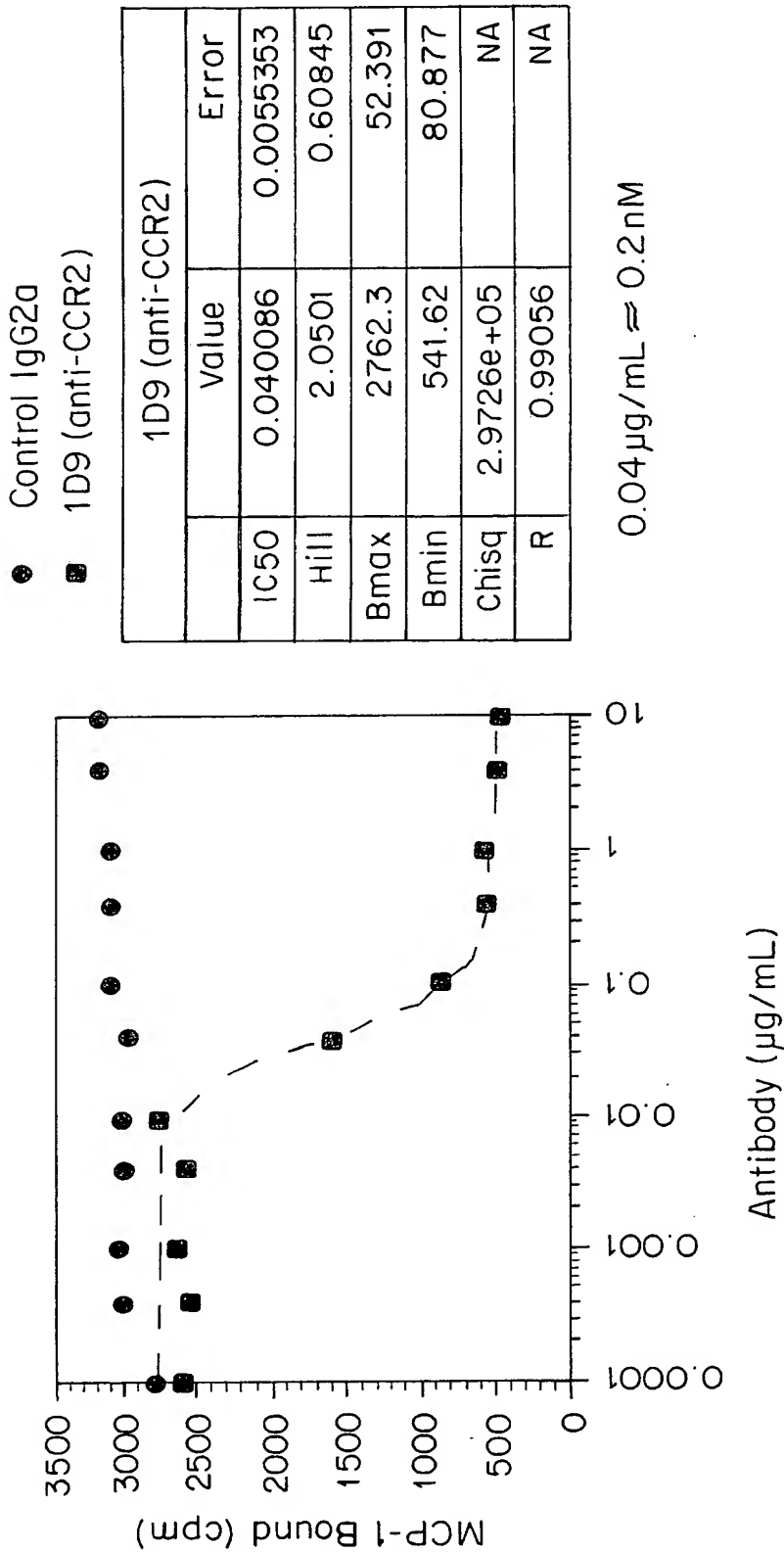


FIG. 5

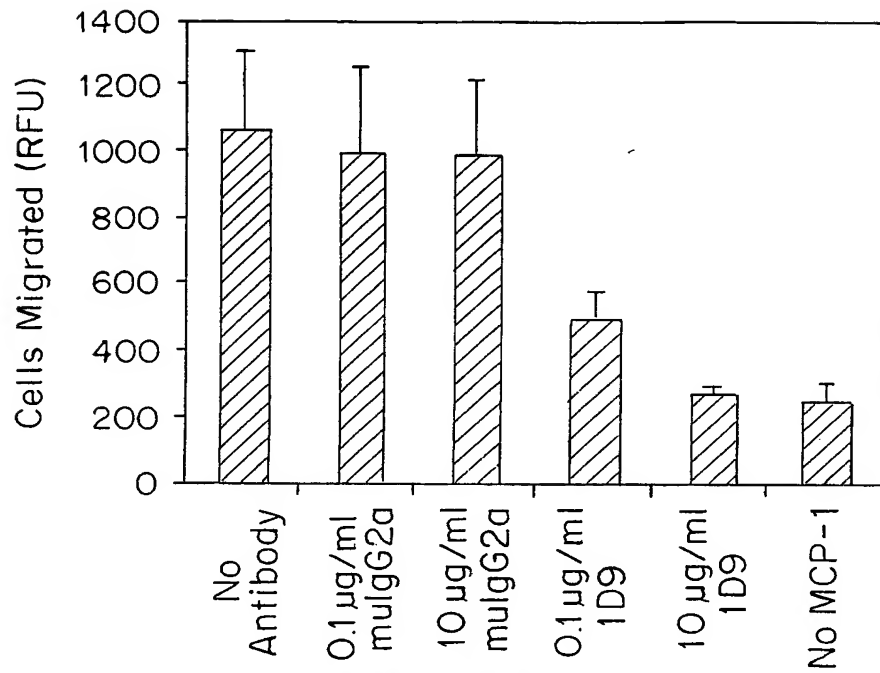


FIG. 6A

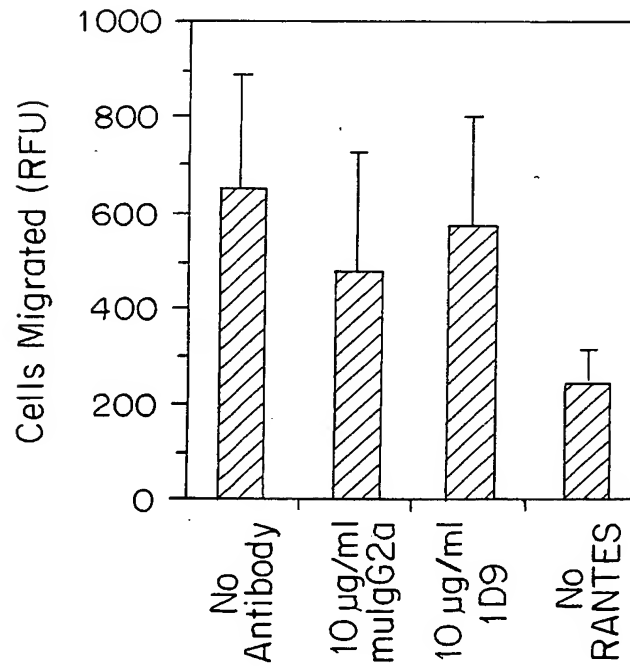


FIG. 6B

1 DVVMTQTPLT LSVTVGHPAS ISCKSSQSLL DSDGKTFLNW LLQRPGQSPK

51 RLIYLVSKLD SGVPDRFTGS GSGTDETLKI SRVEAEDLGV YYCWQGTHTP

101 YTFGGGTKLE IK

Figure 7

1 EVQLVESGGG LVQPKGSLKL SCAASGFSFN **AYAMN**WVRQA PGKGLEWVAR

51 **IRTKNNNYAT YYADSVK**DRY TISRDDSESM LFLQMNNLKT EDTAMYYCVT

101 **FYGNGV**WGTG TTVTVSS

Figure 8

Chothia Canonical Classes

- L1 (16 amino acids) = Class 4
Key residues: **2(V)**, 25(SA), 29(L), 33(L), **71(F)**
- L2 (7 amino acids) = Class 1
Key residues: **48(IV)**, 51(AT), 52(ST), **64(G)**
- L3 (9 amino acids) = Class 1
Key residues: 90(QNH), 95(P)

Martin Canonical Classes

- L1 (16 amino acids) = Class 4/16A
Key residues: **2(V)**, **4(ML)**, **23(C)**, 25(SSP), 26(SN),
27(Q), 29(LI), 30A(HL), 30B(S),
30C(NDS), 30D(G), 32(YS), 33(LF),
34(HEN), **35(W)**, 51(V), **71(F)**, **88(C)**,
90(Q), 92(TS), 93(H)
- L2 (7 amino acids) = Class 1/7A
Key residues: **23(C)**
- L3 (9 amino acids) = Class 1/9A
Key residues: **2(IVL)**, **3(VQLE)**, **4(ML)**,
28(SNDTE), 30(DYLVISNFGHT),
31(SNTKG), 32(FYNAHSR),
33(MLVIF), **88(C)**, 89(QSGFL),
90(QNH), 91(NFGSRDHTYV),
92(NYWTSRQHAD),
93(ENGHTSRAQHAD),
94(DYTVLHNNIWPS), 95(P),
96(PLYRIWF), 97(T), **98(F)**

Figure 9

Chothia Canonical Classes

- H1 (5 amino acids) = Class 1
Key residues: 24(AVG), 26(G), 27(FY)
- H2 (19 amino acids) = Class 4
Key residues: 54(S), 55(Y), 71(R)

Martin Canonical Classes

- H1 (5 amino acids) = Class 1/10A
Key residues: 2(VIG), 4(LG), 20(LIMV), 22(C),
24(TAGVS), 26(G), 29(IFLS),
32(IHYFTNCED), 33(AWGTLV),
34(IVMW), 35(HENQSYT), 36(W),
48(IMLV), 51(LIVTSN),
69(ILFMV), 78(ALVYF), 80(LM),
90(YF), 92(C), 94(RKGSNH),
102(YHVISDG).
- H2 (19 amino acids) = Class 7/12B
Key residues: 47(W), 50(RQ), 51(I), 59(Y), 69(I),
71(R), 78(LV)

Figure 10

Key

Figure 11

1D9RH₀ V_H

1D9RH_D V_H CDR grafted 1D9 V_H region, with back mutations at T28S, S30N, G49A, F67Y and T93V.

Figure 12

Figure 13

Amino Acid Sequence

Sequence Identical
Name Residues

1D9 V _H	117	EVQLVESGGGLVQPKGSLKLSCAASGESFNAYAMN--WVRQAPGKLEWVARIRTKNNNYATYYADSVKDRYTISRDSSESMLEQNNLKTEDTAMYYCVTF
MRL-REF24BG	86	.....VWWRM.....T.T.....S.SS.....F.....Q...Y.....I-
V(H)22.1	70	..K.E.....G.M....V...T.SN.W.S.....S.E.....Q.LSD...H.E...G.F.....K.SVY.....RA...GI...TG-
V11/pBV19B4	66	..K.....G...R...T...T.TD.Y.S.....P...A...LGF..N.A.G.T.E.SA...G.F...N.Q.I.Y...T.RA...S.T...AR-
Vh7183 (Vh69.1)	66	..K.....K.G.....T.SS.T.S.....S.E.R...T.SS--GGSY...P...G.F...NAKNT.Y...SS.S...TR-
VH10-19	65	..D.K.....K.G.....T.SS.T.S.....T.E.R...T.SS--GGSY...P...G.F...NAKNT.Y...SS.S...TR-
VHE4-psi	65	..L.....G.R.....T.SS...S.....T.E.R...A.S.--DGSFI.XP.T.G.F...NAKNT...SS.RY...LR-
V(H)50.1	65	..K.....G.....T.TSD.Y.Y.....T.E.R...Y.SN--GGGS...P.T.G.F...NAKNT.Y...SR.S...AR-
V3	65	..K.....GA..R...S...T.TD.Y...HRP...P...L.L.N.A.G.I.E.SA.M.G.F...N.Q.I.Y...T.S...S.T...ARD
V1/pBV132	64	..K.....G...R...T...T.SDFY.E.....P...R...I.AS.N.A.D.T.E.SA...G.FIV...T.Q.I.Y...A.RA...I...AR-
VH283	64	..M.....K.G.....T.SS.T.S.....T.E.R...T.SS--GGGN...P...G.F...NAKNN.Y...SS.RS...L...AR-
V(H)37.1	63	..K.....K.G.....T.T.SS.G.S.....T.E.R...T.SG--GGSY...P...G.F...NAKNN.Y...SS.RS...L...AR-
V13	61	..K.M.....GA..R...E...T.TD.Y.S.....L.R.SP...L.L.N.A.G.T.E.SA...G.F...N.QNI.Y...T.RA.AS.T...AKD
V-H 441/V441	59	..K.L.....G.....D.SR.W.S.....T.D.R...L.T.NS--CGS...P...G.F...NAKNT.Y...SKVRS...L...AR-
68-5N	59	-----G.....T.SS.G.S.....T.D.R...L.T.NS--CGS...P...G.F...NAKNT.Y...SS.S...AR-
76-1BG/VH7183.9	58	-----K.G.....T.SS...S.....T.E.R...T.SS--GGSY...P...G.F...NAKNT.Y...SS.RS...AR-
61-1P	58	-----G.R.....T.SSFG.H.....E.....Y.SS--GSSTI...T.G.F...NPKN...TS.RS...AR-
57-1M/VH7183.12	58	-----K.G.....T.SS...S.....T.E.R...S.S--SGGS...P...G.F...NARNI.Y...SS.RS...AR-
V(H)55	56	..K.L.....G..N.....D.SR.W.S.....A.....Q..IGE.NP--GSSTIN.TP.L.,KFI...NAKNT.Y...SKVRS...L...AR-
VH7183.13	55	-----K.G.....T.SS.T.S.....T.E.R...Y.SN--GGGS...P.T.G.F...NAKNT.Y...SS.S...AR-

Figure 14

Name	ID
------	----

Figure 15

Name	ID	Surface	Core	Kabat CDR	FR	Surface	Core	FR	Vernier	V _K	J Chain	Closest Human Germline Gene	L1 Len	L2 Len	L3 Len	L1 Class	L2 Class	L3 Class
1D9 V _K	100.0	30	82	32	82	22	60	33	14	100	14		16	7	9	4	1	1
036521	90.4	27	76	28	75	19	56	31	13	90	13	DPK19-A1+	Same	Same	Same	Same	Same	Same
IL66	78.8	25	67	22	69	18	52	30	13	80	12	DPK18-A17+	Same	Same	Same	Same	Same	?
RPMI6410	78.8	25	67	22	69	18	52	30	13	79	12	DPK18-A17+	Same	Same	Same	Same	Same	?
ZM1-1	78.8	25	66	21	68	18	52	30	13	79	12	DPK18-A17+	Same	Same	Same	Same	Same	Same
VL clone 54	78.1	25	66	21	68	18	52	30	13	79	12	DPK18-A17+	Same	Same	Same	?	Same	Same
HF-21/28	79.3	24	66	21	68	18	52	30	13	78	12	DPK18-A17+	Same	Same	Same	Same	Same	Same
SpA2-08	77.9	24	65	21	68	18	51	30	13	77	12	DPK18-A17+	Same	Same	Same	?	Same	Same
IL30	77.9	24	65	21	68	18	51	30	12	77	12	DPK18-A17+	Same	Same	Same	Same	Same	Same
HUNVK	77.9	24	65	21	68	18	51	30	12	77	12	DPK18-A17+	Same	Same	Same	Same	Same	Same
O-81	75.7	24	65	21	68	18	51	30	12	77	12	DPK18-A17+	Same	Same	10	Same	Same	?
ToP309	74.8	24	64	20	68	18	51	29	12	76	12	DPK12-A2+	Same	Same	10	?	Same	?
ToP218	74.8	24	64	20	68	18	51	29	12	76	12	DPK12-A2+	Same	Same	10	?	Same	?
SpA3-02	76.1	24	63	20	68	18	51	29	12	76	12	DPK18-A17+	Same	Same	Same	?	Same	Same
IL37	75.2	24	63	20	68	18	51	29	12	76	12	DPK18-A17+	Same	Same	Same	Same	Same	Same
CUM	73.9	24	63	20	68	18	50	29	12	75	12	DPK36-Chr22 4	17	Same	Same	3	Same	Same
VL clone 51	74.6	24	62	20	67	18	50	29	12	75	12	DPK18-A17+	Same	Same	Same	?	Same	Same
IL20	75.2	23	62	20	67	18	50	29	12	75	12	DPK18-A17+	Same	Same	Same	?	Same	Same

Figure 16

Name	ID
John Doe	12345
Jane Smith	67890
Bob Johnson	11111
Alice Brown	22222
Charlie Davis	33333
Eve Wilson	44444
Frank Miller	55555
Grace Lee	66666
Henry King	77777
Ivy White	88888
Jack Black	99999
Karen Green	10101
Leo Gray	20202
Mia Blue	30303
Noah Red	40404
Olivia Yellow	50505
Peter Purple	60606
Quinn Pink	70707
Rachel Silver	80808
Sam Gold	90909
Tina Bronze	10010
Uma Copper	20020
Victor Iron	30030
Wendy Steel	40040
Xavier Aluminum	50050
Yara Zinc	60060
Zoe Nickel	70070
Adam Platinum	80080
Ella Titanium	90090
Frank Silver	10000
Grace Gold	20000
Henry Copper	30000
Ivy Iron	40000
Jack Steel	50000
Karen Aluminum	60000
Leo Zinc	70000
Mia Nickel	80000
Noah Platinum	90000
Olivia Titanium	100000

UBI-24	67.2	.....GR..R.....T.DD..H.....SG.SW--..SGSIG.....G.F.....NARN.S.Y.....S.RA...L...A.H---	YYYYYGMD...Q.....
029764	64.5	Q..._Q...G..R.....T.SS..S..._H...A.SG--SGGS...G.F...N.KNT.Y...S.RA...V...ARGW.LRGEED	YYMD...K..M.....
IW2-105	64.5	.....K.G..R.....T.SNAW.S.....G.KS.TDGET.D.AP.G.F.....KNT.Y...S.....V...T.PHTEGGVIVIS	DY...Q..L.....
UBI-17	65.0	.....K_R..R.....T.SNAW.S.....G.KS.TDGET.D.AP.G.F.....KNT.Y...S.....V...T.ASYSYGRGC	FDY...Q..L.....
VH Clone 41	66.1	.....G..R.....T.SS..S..._G...SA.SG--SGGS...G.F...N.KNT.Y...S.RA...V...AKDISWGDLEGL	DY...Q..L.....
4B4*CL	67.2	.....K.G..R.....T.SNAW.S.....G.KS.TDGET.D.AP.G.F.....KNT.Y...S.....V...T.DSLPPHVR	--..Q..L.....
M26	65.0	.....K.G..R.....T.SNAW.S.....G.KS.TDGET.D.AP.G.F.....KNT.Y...S.....V...T.SIPGAVAGT	DY...Q..L.....

Name	ID	All	Surface	Core	Kabat CDR	FR	FR Surface	Core FR	FR Near CDR	V _H	J Chain	Closest Human Germline Gene	H1 Size	H2 Size	H3 Size	H1 Class	H2 Class
1D9 V _H	100.0	117	29	84	30	87	21	65	30	16	100	17	5	19	6	1	4
030094	67.7	86	19	67	15	72	17	57	26	12	75	13	Same	Same	16	Same	Same
N51P8	68.3	86	18	66	15	72	16	57	25	12	75	13	Same	Same	15	?	Same
IW2-91	67.5	85	18	65	15	72	16	56	25	12	75	12	Same	Same	15	Same	Same
H2-46	66.7	84	18	65	15	72	16	56	25	12	75	12	Same	Same	15	Same	Same
039158	72.2	83	17	64	15	71	15	56	25	12	74	12	Same	Same	15	Same	Same
038064	65.6	82	17	64	14	71	15	56	25	11	74	12	DP-29-122+				
038062	64.6	82	17	63	14	71	15	56	25	11	73	12	VH26Rabbits+				
32.B9	64.6	82	17	63	14	71	15	56	25	11	72	12	VH26Rabbits+				
038062	64.6	82	17	63	14	71	15	56	25	11	72	12	VH26Rabbits+				
034514	69.8	81	17	63	14	70	15	56	25	11	72	12	VH26Rabbits+				
038066	65.3	81	16	63	14	70	15	55	25	11	71	12	VH26Rabbits+				
035365	65.9	81	16	63	14	70	15	55	25	11	71	12	VH26Rabbits+				
													Same	Same	17	Same	3

Figure 18A

Name	ID	All	Surface	Core	Kabat CDR	FR	Surface	Core	FR	Near CDR	V _H	J Chain	Closest Human Germline Gene	H1 Size	H2 Size	H3 Size	H1 Class	H2 Class
Hb-5	69.2	81	16	63	14	69	15	55	25	25	71	12	VH26Rabbits+					
4G12	64.8	81	16	63	14	69	15	55	25	25	71	12	VH26Rabbits+	Same	17	16	Same	3
VH clone 39	66.7	80	16	63	14	69	14	55	25	25	71	12	VH26Rabbits+	Same	17	11	Same	3
040094	62.5	80	16	63	14	69	14	55	25	25	71	12	LSG3.1					
VH clone 18	63.0	80	16	63	13	69	14	55	25	25	71	12	VH26Rabbits+	Same	17	18	Same	3
UB1-24	67.2	80	16	63	13	69	14	55	25	25	71	12	DP-31-V39P+	Same	17	10	Same	3
029764	64.5	80	16	63	13	69	14	55	25	25	71	12	VH26Rabbits+	Same	17	15	Same	3
IW2-105	64.5	80	16	63	13	69	14	55	25	25	71	12	LSG3.1	Same	Same	13	Same	?
UB1-17	65.0	80	16	63	13	69	14	55	25	25	71	11	LSG3.1	Same	Same	12	Same	?
VH clone 41	66.1	80	16	62	13	69	14	55	25	25	71	11	VH26Rabbits+	Same	17	12	Same	3
4B4'CL	67.2	80	16	62	13	68	14	55	25	25	71	11	LSG3.1	Same	Same	8	Same	?
M26	65.0	80	16	62	13	68	14	55	25	25	71	11	LSG3.1	Same	Same	12	Same	?

Figure 18B

Kabat	#	FR or CDR	Mouse 1D9 V _K	Mouse κ-II	Human κ-II	Human Acceptor HF-21/28 (005056)	Surface or Core	1D9 RK _A	1D9 RK _B	Comment
1	1	FR1	D	D*	D		S	D	D	
2	2		V	V	I*		C	V	V	
3	3		V	V	V*		S	V	V	
4	4		M	M	M		C	M	M	
5	5		T	T*	T		C	T	T	
6	6		Q	Q*	Q		C	Q	Q	
7	7		T	T	S	S	S	S	S	
8	8		P	P	P		c	P	P	
9	9		L	L	L		s	L	L	
10	10		T	S	S	S	C	S	S	
11	11		L	L	L*		c	L	L	
12	12		S	P	P	R	c	P	P	
13	13		V	V*	V*		c	V	V	
14	14		T	S	T		c	T	T	
15	15		V	L	P	L	s	L	L	
16	16		G	G	G		c	G	G	
17	17		H	D	E	Q	c	Q	Q	
18	18		P	Q	P		s	P	P	
19	19		A	A	A		c	A	A	
20	20		S	S*	S		c	S	S	
21	21		I	I*	I		c	I	I	
22	22		S	S*	S*		C	S	S	
23	23	FR1	C	C	C		C	C	C	
24	24	CDR1	K	R	R	R	s	K	K	
25	25		S	S*	S*		c	S	S	
26	26		S	S*	S		s	S	S	
27	27		Q	Q	Q		s	Q	Q	
27A	28		S	S	S		s	S	S	
27B	29		L	L	L		c	L	L	
27C	30		L	V	L	V	s	L	L	
27D	31		D	H	H	H	c	D	D	
27E	32		S	S	S		s	S	S	
27F			I		x			-	-	
28	33		D	N	D		s	D	D	
29	34		G	G*	G		c	G	G	
30	35		K	N	N	N	c	K	K	
31	36		T	T	N		c	T	T	
32	37		F	Y*	Y	Y	c	F	F	
33	38		L	L*	L		c	L	L	
34	39	CDR1	N	E	N		c	N	N	
35	40	FR2	W	W	W		C	W	W	
36	41		L	Y	Y	F	C	F	L	Δ1

Figure 19A

Kabat	#	FR or CDR	Mouse 1D9 V _K	Mouse κ-II		Human κ-II	Human Acceptor HF-21/28 (005056)	Surface or Core		1D9 RK _A	1D9 RK _B	Comment
37	42		L	L		L	Q	c		Q	L	Δ2
38	43		Q	Q*		Q		c		Q	Q	
39	44		R	K		K		c		R	R	
40	45		P	P*		P		s		P	P	
41	46		G	G*		C		s		G	G	
42	47		D	Q		Q		c		Q	Q	
43	48		S	S*		S		c		S	S	
44	49		P	P*		P		C		P	P	
45	50		K	K		Q	R	c		R	R	
46	51		R	L		L		C		R	R	
47	52		L	L*		L		C		L	L	
48	53		I	I*		I		C		I	I	
49	54	FR2	Y	Y		Y		C		Y	Y	
50	55	CDR2	L	K		L		c		L	L	
51	56		V	V		V	K	c		V	V	
52	57		S	S		S		c		S	S	
53	58		K	N		N		c		K	K	
54	59		L	R		R	N	c		L	L	
55	60		D	F		A	R	c		D	D	
56	61	CDR2	S	S*		S		s		S	S	
57	62	FR3	G	G		G		S		G	G	
58	63		V	V		V		C		V	V	
59	64		P	P		P		C		P	P	
60	65		D	D*		D		S		D	D	
61	66		R	R		R		C		R	R	
62	67		F	F*		F		C		F	P	
63	68		T	S		S	S	C		S	S	
64	69		G	G*		G		C		G	G	
65	70		S	S*		S		C		S	S	
66	71		G	G*		G		C		G	G	
67	72		S	S*		S		s		S	S	
68	73		G	G*		G		C		G	G	
69	74		T	T*		T		C		T	T	
70	75		D	D*		D		C		D	D	
71	76		L	F*		F		C		F	F	
72	77		T	T*		T		c		T	T	
73	78		L	L		L		c		L	L	
74	79		K	K		K		c		K	K	
75	80		I	I		I		c		I	I	
76	81		S	S		S		c		S	S	
77	82		R	R*		R		s		R	R	
78	83		V	V		V		c		V	V	
79	84		E	E		L		s		L	E	
80	85		A	A*		A		c		A	A	
81	86		E	E*		E		s		L	E	
82	87		D	D*		D		c		D	D	
83	88		L	L		V	V	c		V	V	
84	89		G	G*		G		c		G	G	
85	90		V	V		V		c		V	V	
86	91		Y	Y*		Y		c		Y	Y	
87	92		Y	Y		Y		C		Y	Y	
88	93	FR3	C	C		C		C		C	C	

Figure 19B

Docket No.: 1855.1052-028
 Title: Humanized Anti-CCR2 Antibodies...
 Inventors: Gregory J. LaRosa, *et al.*

Kabat	#	FR or CDR	Mouse 1D9 V _K	Mouse κ-II		Human κ-II	Human Acceptor HF-21/28 (005056)	Surface or Core		1D9 RK _A	1D9 RK _B	Comment
89	94	CDR3	W	F		M		c		W	W	
90	95		Q	Q*		Q	M	c		Q	Q	
91	96		G	G		A		c		G	G	
92	97		T	T		L		c		T	T	
93	98		H	H		Q		c		H	H	
94	99		F	V		x		s		F	F	
95	100		P	P*		F	W	c		P	P	
95A			-	P		R				-	-	
95B			-	-		-				-	-	
95C			-	-		-				-	-	
95D			-	-		-				-	-	
95E			-	-		-				-	-	
95F			-	-		-				-	-	
96	101		Y	Y		x	-	c		Y	Y	
97	102	CDR3	T	T*		T	F	c		T	T	
98	103	FR4	F	F*		F		C		F	F	
99	104		G	G		G		c		G	G	
100	105		G	G		Q	Q	c		Q	Q	
101	100		G	G		G		c		G	G	
102	106		T	T		T		c		T	T	
103	107		K	K*		K	R	s		R	R	
104	108		L	L		V		c		L	L	
105	109		E	E		E		s		E	E	
106	110		I	I		I		s		I	I	
106A			-	-		-				-	-	
107	111	FR4	K	K*		K	-	s		K	K	

Figure 19C

Docket No.: 1855.1052-028
 Title: Humanized Anti-CCR2 Antibodies...
 Inventors: Gregory J. LaRosa, *et al.*

Kabat	#	FR or CDR	Mouse 1D9 V _H	Mouse IIIc	Human III	Human Acceptor 4B4'CL (000490)	Surface Or Core	1D9 RH _A	1D9 RH _B	Comment
1	1	FR1	E	E*	E		s	E	E	
2	2		V	V	V		C	V	V	
3	3		Q	K*	Q		s	Q	Q	
4	4		L	E*	L*		C	L	L	
5	5		V	E	V		s	V	V	
6	6		E	E	L		c	E	E	
7	7		S	S	S*		c	S	S	
8	8		G	G	G*		c	G	G	
9	9		G	G	G*		c	G	G	
10	10		G	G*	G		c	G	G	
11	11		L	L	L		S	L	L	
12	12		V	V*	V		c	V	V	
13	13		Q	Q	Q	K	s	K	K	
14	14		P	P	P*		c	P	P	
15	15		K	G	G*	G	s	G	G	
16	16		G	G	G		s	G	G	
17	17		S	S	S*		c	S	S	
18	18		L	M*	L*		c	L	L	
19	19		K	K*	R	R	c	R	R	
20	20		L	L	L		c	E	L	
21	21		S	S	S*		c	S	S	
22	22		C	C	C*		C	C	C	
23	23		A	V	A		c	A	A	
24	24		A	A	A		C	A	A	
25	25		S	S	S*		c	S	S	
26	26		G	G	G		c	G	G	
27	27		F	F	F*		L	E	F	
28	28		S	T*	T	T	C	T	S	Δ1
29	29		F	F*	F		C	F	F	
30	30	FR1	N	S	S	S	S	S	N	Δ2
31	31	CDR1	A	N	S	N	c	A	A	
32	32		Y	Y	Y	A	S	Y	Y	
33	33		A	T	A	W	S	A	A	
34	34		M	M	M		c	M	M	
35	35		N	N	S	S	c	N	N	
35a			-	-	-		c	-	-	
35b		CDR1	-	-	-		c	-	-	

Figure 20A

Docket No.: 1855.1052-028
 Title: Humanized Anti-CCR2 Antibodies...
 Inventors: Gregory J. LaRosa, *et al.*

Kabat	#	FR or CDR	Mouse 1D9 V _H	Mouse IIIc	Human III	Human Acceptor 4B4'CL (000490)	Surface Or Core	1D9 RH _A	1D9 RH _B	Comment
36	36	FR2	W	W	W*		C	W	W	
37	37		V	V	V*		C	V	V	
38	38		R	R	R*		C	R	R	
39	39		Q	Q	Q*		c	Q	Q	
40	40		A	S	A		c	A	A	
41	41		P	P	P		s	P	P	
42	42		G	E	G*		s	G	G	
43	43		K	K	K		s	K	K	
44	44		G	G	G		c	G	G	
45	45		L	L	L*		C	L	L	
46	46		E	E*	E		C	E	E	
47	47		W	W	W*		C	W	W	
48	48		V	V*	V*		C	V	V	
49	49	FR2	A	A	S	G	C	G	G	
50	50	CDR2	R	E	V		c	R	R	
51	51		I	I	I		c	I	I	
52	52		R	R	S	K	s	R	R	
52a	53		T	L	G	S	s	T	T	
52b	54		K	K	K*		s	K	K	
52c	55		N	S	T	T	c	N	N	
53	56		N	H	D	D		N	N	
54	57		N	N	G	G		N	N	
55	58		Y	Y	G	G		Y	Y	
56	59		A	A	S	T	s	A	A	
57	60		T	T	T		c	T	T	
58	61		Y	H	Y	D	c	Y	Y	
59	62		Y	Y	Y		c	Y	Y	
60	63		A	A	A		c	A	A	
61	64		Q	E	D	A	s	D	D	
62	65		S	S	S	P	s	S	S	
63	66		V	V	V*		c	V	V	
64	67		K	K	K		s	K	K	
65	68	CDR2	D	G	G*	G	s	D	D	
66	69	FR3	R	R	R*		C	R	R	
67	70		Y	P	F*	F	C	F	F	
68	71		T	T	T		C	T	T	
69	72		I	I*	I*		C	I	I	
70	73		S	S	S*		S	S	S	
71	74		R	R	R*		C	R	R	
72	75		D	D	D		c	D	D	
73	76		D	D	N		C	D	D	
74	77		S	S	S		s	S	S	
75	78		E	K	K	K	s	K	K	
76	79		S	S	N	N	s	N	N	
77	80		M	S	T	T	c	T	T	
78	81		L	V	L		C	L	L	
79	82		F	Y	Y	Y	c	Y	Y	
80	83		L	L	L*		c	L	L	

Figure 20B

Kabat	#	FR or CDR	Mouse 1D9 V _H	Mouse IIIc	Human III	Human Acceptor 4B4'CL (000490)	Surface Or Core	1D9 RH _A	1D9 RH _B	Comment
81	84	|	Q	Q*	Q		c	Q	Q	
82	85	|	M	M	M*		C	M	M	
82a	86	|	N	N	N		s	N	N	
82b	87	T	N	N	S	S	s	S	S	
82c	88	|	L	L	L*		c	L	L	
83	89	T	K	R	R		s	K	K	
84	90	|	T	A	A		c	T	T	
85	91	T	E	E	E		s	E	E	
86	92	|	D	D	D		C	D	D	
87	93	|	T	T	T		c	T	T	
88	94	|	A	G	A*		c	A	A	
89	95	T	M	I	V	V	c	V	V	
90	96	|	Y	Y	Y*		c	Y	Y	
91	97	|	Y	Y	Y*		G	Y	Y	
92	98	T	C	C*	C*		C	C	C	
93	99	|	V	T	A	T	C	T	T	
94	100	FR3	T	T	R		C	T	T	
95	101	CDR3	F	G	G	D	c	F	F	
96	102	|	Y	F	R	S	c	Y	Y	
97	103	|	G	-	x	L	s	G	G	
96	104	|	N	-	G	P	c	N	N	
99		|	-	-	x	P	c	-	-	
100		|	-	-	S	H	c	-	-	
100 a		|	-	-	L		C	|	-	
100 b		|	-	-	S		C	-	-	
100 c		|	-	-	G			-	-	
100 d		|	-	-	-			-	-	
100 e		|	-	-	Y			-	-	
100 f		|	-	-	Y			-	-	
100 g		|	-	-	Y			-	-	
100 h		|	-	-	Y			-	-	
100 I		|	-	-	H			-	-	
100 j		|	-	-	Y			-	-	
100 k		|	-	F	F		C	-	-	
101	105	|	G	A	Q	R	C	G	G	
102	106	CDR3	V	Y	Y		C	V	V	
103	107	FR4	W	W	W*		C	W	W	
104	108	|	G	G	G*		C	G	G	
105	109	|	T	Q	Q	Q	S	Q	Q	
106	110	|	G	G	G*		C	G	G	
107	111	|	T	T	T*		C	T	T	
108	112	T	T	L	L	L	C	L	L	
109	113		V	V	V*		C	V	V	
110	114	T	T	T	T*		C	T	T	
111	115		V	V*	V*			V	V	
112	116		S	S	S*			S	S	
113	117	FR4	S	S	S*			S	S	

Figure 20C

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ATGGACTTCGGTTAAACTTGGTTTCTTTGTTGTTTTTATCAAGGTGTCATTGAGGTCAGCTTGTGAGTCTGGAGGAGGATTGGTGCAGCCTA
TACCCTGAAGCCCAATTGAACCAAAAGAAACAACAAAAATAGTCCACACGTAACACTCCACGTCGACAACTCAGACCTCCCTCTAACCCACGTCGGAT
M D F G L N L V F F V F V F Y Q G V H C | E V Q L V E S G G L V Q P
leader <--- variable
AAGGGTCATTGAAACTCTCATGTGCAGCCCTCTGGATTACAGTTCAATGCCTACGCCATGAACCTGGGTCGCCACGGCTCCAGGAAAGGGTTTGGAAATGGGT
TCCCCAGTAACCTTGAGAGTACACGTCGGAGACCTAAGTCGAAGTTACGGATGCGGTACTTGACCCAGGCGGTCCGAGGTCTTTCCTCCAAACCTTACCCA
K G S L K L S C A A S G F S F N A Y A M N W V R O A P G K G L E W V
TGCTCGCATAGAACAATAATAATTATGCAACATAATTATGCGGATTTCAGTGAAGACAGATACACCATCTCCAGAGATGATTCAGAAAGTATGCTC
ACGAGCGTATCTTGATTTTATTATTAAATACGTTGTGTAATAACGGCTAAGTCACCTTCTGCTCTATGTGTAGAGGTCTCTACTAAGTCCTTTCATACGAG
A R I R T K N N N Y A T Y Y A D S V K D R Y T I S R D D S E S M L
TTTCTGCAAAATGAACAACCTTGAAAACTGAGGACACAGCCATGTATTACTGTGTGACCTTTTACGGTAACGGTGTCTGGGGCACAGGGACACCGGTCACCG
AAGACGTTTACTTGTGAACCTTTTGACTCCCTGCTGCTGCTACATAATGACACACTGGAAATGCCATTGCCACAGACCCCGTGCTCCCTGGTGGCCAGTGGC
F L Q M N N L K T E D T A M Y Y C V T F Y G N G V W G T G T T V T
TCTCCTCAGCCAAACAACAGCCCCATCCGTCCTATCCCCCTGGT
AGAGGAGTCGGTTTGTGTCGGGTAGGCAGATAGGGGACCA
variable <--- constant
V S S A K T T A P S V Y P L V
443
400

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Figure 21

ATGAAGTIGCCIGTGGCTGTTGGTCTCTGGATTTCGGGAGACAATCGGGGATGTTGTGATGACCCAGACTCCACTCATTGTCGGTTACCGTTGGAC
TACTTCAACGGACAATCCGACAAACACGAGACCTAAGCCCTCTGTTAGCCGCTACACACTACTGGGTCTGAGGTGAGTGAAACAGCCAAATGGCAACCTG
M K L P V R L L V L W I R E T I G D V V M T O T P L T L S V T V G
leader ← variable
ACCCAGCCTCCATCTCTGCAAGTCAAGTCAGAGCCCTTAGATAGTGAAGACATTTTGAATTGGTTGTACAGAGGCCAGGCCAGTCTCCAAA
TGGGTCCGAGGTAGACAACGTTTCAGTTCAGTCTCGGAGAACTATCACTACTCTGTAAAAAATTAACCAACAATGTCCTCCGGTCCGGTCAGAGGTTT
H P A S I S C K S S O S L L D S D G K T F L N W L L O R P G O S P K
GGCCTAATCTATCTGTCTAAACTGGACTCTGGAGTCCCTGACAGGTTTCACAGGTCAGGATCAGGACAGATTTCACACTGAAAAATCAGCAGAGTG
CGCGATTAGATAGACACAGATTTGACCTGAGACCTCAGGGACCTGCCAAGTACCGTACCTAGTCCCTGTCTAAAGTGTGACTTTTAGTCGTCAC
R L I Y L V S K L D S G V P D R F T G S G S G T D F T L K I S R V
GAGGTGAGGATTTGGAGTTTATTTGCTGGCAAGGTACACATTTTCCGTACACGTTTCGGAGGGGGACCAAGCTGGAAATAAAACGGGCTGATGCTG
CTCCGACTCCTAAACCCCTCAAATAAATACGACCGTTCCATGTGTAAAGGCATGTGCAAGCCCTCCCCCTGGTTCGACCTTTATTTTGGCCCGACTACGAC
E A E D L G V Y Y C W O G T H F P Y T F G G G T K L E I K R A D A
variable ← constant
CACCAACTGTATCCATCTTCCACCA
GTGGTTGACATAGTAGAGGGTGGT
426
A P T V S I F P P

Figure 22

Mfe I

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GAGGTGCAATTGGTTGAGTCIGGAGGAGGATTGGTGAAGCCIGGGGGGTCATTGAGACTCTCATGTGCAGCCCTCTGGATTCACTTTCAGTGCCTACGCCA
CTCCACGTTAACCACACTCAGACCTCCTCCTAACCACCTTCGGACCCCGCCAGTAACTCTGAGAGTACACGTCGGAGACCTAAGTGAAGTCACGGATGCGGT
10
E V O L V E S G G G L V K P G G S L R L S C A A S G F T F S A Y A
TGAAGTGGGTCCGCCAGGCTCCAGGAAAGGGTTTGGGAATGGGTTCGCCGCATATAAGAACTAAAAATAATAATATGCAACATAATATGCGGATTGAGTGAA
20
ACTTGACCCAGGCGGTCCGAGGTCCTTTCCTCAACCTTACCCAAACCGGCTATCTTGATTTTATTAATTAATACGTTGTATAATAACGGCTAAGTCACCT
M N W V R Q A P G K G L E W V G R I R T K N N N Y A T Y Y A D S V K
AGACAGATTACCAATCTCCAGAGATGATTCAAAAAACACCGCTCTATCTGCAAAATGAACAGCTTGAAAACCTGAGGACACACGCCGTGTATTAATGACACC
30
TCTGCTAAGTGGTAGAGGTCTCTACTAAGTTTTTTTGGCGAGATAGACGTTTACTTGTCGAACCTTTTGACTCCTGTGTCGGCACATAATGACATGGTGG
D R F T I S R D D S K N T L Y L O M N S L K T E D T A V Y Y C T T
14
15
TTTACGGTAACGGTGTCTGGGGCCAGGGGACCCCTGGTCACCGTCAGCTCAGCCAAA
357
AAATGCCATTGCCACAGACCCCGGTCCTGGGACCCAGTGGCAGTCGAGTCGGTTT
F Y G N G V W G Q G T L V T V S S A K
```

Figure 23

CTACGTAAGTATGACCCAGCTCCACCTCCTTGGCCGTTACCCCTGGACAGCCAGCCTCCATCTCTTGAAGTCAGTCAGAGCCTCTTAGATAGTAT
GATGCATCACTACTGGGTGAGAGGTGAGAGGAACGGGCAATGGGAACCTGTCGGTCGGAGGTAGAGAACGTTTCAGTTCAGTCTCGGAGAACTCACTCACTA
[Y]V V M T Q S P L S L P V T L G O P A S I S C K S S O S L L D S D
GGAAGACATTTTGAATTTTTCAGCAGAGGCCAGGCCAGCTCCAAAGGCCCTAATCTATCTGGTGTCTAACTGGACCTCGGAGTCCCTGACAGGT
CCTTCTGTAAACTTAACCAAGTCTGTCCTGGTCCGGTCCAGAGGTTCGGCGGATTAGATAGACCACAGATTGACCTGAGACCTCAGGGACTGTCCTCA
G K T F L N W F Q O R P G O S P R R L I Y L V S K L D S G V P D R
TCAGCGGCAGTGGATCAGGGACAGATTTTACACTGAAATCAGCAGAGTGGAGGCTGAGGATGTTGGAGTTTATTATTCGTCGCAAGGTACACATTTTCC
AGTCGCGCTCACCTAGTCCCTGCTAAAGTGTGACTTTTGTCTCAGCTCCGACTCTACAACTCAATAAATCAACGACCTTCCATGTGTAAAGG
F S G S G S G T D F T L K I S R V E A E D V G V Y Y C W O G T H F P
GTACACGTTCCGACAAAGGACCCGACTGGAATAAATACGTACGG
CATGTGCAAGCCTGTTCCCTGGGCTGACCTTTATTTGTCATGCC
Y T F G O G T R L E I K R T

Figure 24